

Enhanced Dune Management

A. Summary of Coastal Management Problem

Virginia enacted the Coastal Primary Sand Dune Protection Act (the Act) in 1980 in response to the belief held by many scientists and resource managers that dunes and beaches, but particularly the coastal primary dunes, were the first line of defense against erosion of bay and ocean shorelines. Beaches were given an expanded definition and added protection within the Act in 1989. Recent research efforts, funded through Section 306, have focused on identifying, enumerating and classifying all dune resources within the State. Several aspects of the Act make dune management problematic including the legal definition of a coastal primary sand dune and the geographic limit of the Act. Additionally, management is locality-based with state oversight of local decisions, but management of these critical and rare areas is inconsistent, which may be attributed to a general lack of understanding of the importance of the resource, or meaning and content of the Act.

The legal definition of a coastal primary sand dune is not supported by Virginia's coastal plain geology; the definition of a dune, meeting the three criteria of substance, morphology, and character, is inflexible and incomplete. The definition attempts to provide easily observable features that are readily recognized from on-site inspection and/or survey transect data. The definition generally is more accurate when applied to ocean coastal primary dunes since their morphology is more consistent over a shoreline reach than Bay and river dunes. Since natural Bay and river dune morphology varies within the landscape, dunes located in these areas do not always meet the legal definition for dunes. Man-influenced and man-made dunes can further complicate the definition criteria. For Bay and river dunes, the definition often excludes the largest dune feature along the shoreline (demonstrated by the current effort), and excludes contiguous areas of importance such as secondary dunes, dune fields and maritime forests.

Also of concern is the limited geographical reach of the Act. At present, the law is limited to eight localities with open ocean and/or Chesapeake Bay shoreline. Dune resources extend well upstream of the mouths of Bay tributaries and these dunes are not implicitly included in Virginia's dune management program. Significant dune resources also have been remotely identified in localities excluded from the Act. Additionally, tidewater localities not participating in the regulatory program lack jurisdictional authority to regulate encroachment upon beaches. Intertidal beaches are defined as tidal wetlands in Virginia and are regulated through the tidal wetlands regulatory program. Since wetlands jurisdiction extends only from mean low water to mean high water, the majority of Tidewater localities lack the proper review authority on shoreline activities occurring above mean high water.

Due to the highly dynamic nature of dunes and the inherent difficulties arising from the legal dune definition, jurisdictional determinations and delineations of dunes are difficult. Subsequently, the lack of ability to identify, quantify and delineate the resource can result in frustration, regulatory confusion and delays, ending up with the alienation of the resource from the management arena.

B. Proposed Program Changes

The proposed program changes still need to be refined and approved by DEQ, VMRC, and local

Wetland Boards. However, they will be based on the issues identified and data developed through previous and on-going efforts. The results of this work could, if warranted, lead to proposing amendments to the Act. Anticipated changes that are being considered include:

- Alternative jurisdictional definitions that would more accurately describe and delineate the functional limits of natural dune systems, as opposed to just primary coastal dunes.
- Expansion of the reach of the regulatory program to existing resources in current non-jurisdictional localities.
- Inclusion of beaches and their supporting dune systems.
- Changes to the definition of a resource protection features under the Chesapeake Bay Preservation Act and Regulations.

C. Anticipated Effect of Proposed Change

This research plan and related regulatory change alternatives proposed for the management of dune and beach resources will accomplish several important objectives.

- **Improved scientific recommendations to the Marine Resources Commission and local Wetlands Boards**

For the first time, Virginia will have a complete and accurate base of information on this critical resource. This information will not only justify the proposed program changes but it will immediately result in improved scientific advice from VIMS on effects from proposed development projects.

- **Enhanced protection of dune and beach resources**

Changes to the geographic extent of the Act will place significantly more dunes and beaches under public interest review. Additionally, the proposed program changes will result in comprehensive review of potential impacts to shoreline resources. The current structure impedes integrated review of impacts to adjacent resources.

- **Enhanced Management Tools**

This information base will include management tools such as: an inventory of dunes by locality and watershed; a physical-based classification of the resource to guide management decisions, preservation targeting, and restoration efforts; a Bay-wide synthesis of structural variables such as elevation, sand volume, area, and habitat characterization for coastal hazards analysis and planning; and a Bay-wide monitoring program to provide managers data on the status of the resource due to natural changes. These management tools will provide additional benefits in guiding future coastal hazards protection changes and compensatory mitigation.

D. Appropriateness of Change

Gaps have been identified in the management structure between agencies' and localities' jurisdictions. Currently, coastal primary sand dunes are regulated in only eight of 44 coastal localities in Virginia. There are significant dune resources left unprotected, including all secondary dunes. The changes outlined in this strategy are necessary to protect dune resources throughout Virginia's coastal zone.

E. General Work Plan

Several projects are currently underway using FY98 (“Year 1”) and FY00 (“Year 2”) funds. These projects are addressing the inventory, research, data collection, and education needs identified above, as well as the development of a monitoring program. This research and development continues into FY 01, and to a lesser extent, FY 02. The development of management and policy options to strengthen the current management structure will begin in FY 02. A subgroup of the Coastal Policy Team will be identified to work closely with VIMS to refine the final set of changes to move through the adoption process. In FY 03, staff of the Virginia Marine Resources Commission and possibly CBLAD will assist in the development of draft legislation supported by ongoing analysis. Staff from VMRC will begin the implementation process subsequent to any legislative or administrative action.

Time Line

Progress on all efforts, along with the products/results will be provided to the Virginia Coastal Program’s Policy Team, VMRC, and local Wetland Boards on an on-going basis.

FY 2001: October 1, 2001 - September 30, 2002 (VIMS)

- Task 1:** Analysis of upland development patterns contiguous to critical dune resources and determination of ecological risk from development.
- Task 2:** Incorporation of Virginia Heritage Program data into the habitat analysis.
- Task 3:** Continuation of the Bay-wide monitoring program and associated progress reports.
- Task 4:** Development and distribution of four locality-specific dune resource inventories.

FY 2002: October 1, 2002 - September 30, 2003 (VIMS)

- Task 1:** Development of a physical/prediction model of shoreline change for selected dunes/dune fields.
- Task 2:** Analysis and development of policy options with respect to important dune system components.
- Task 3:** Coordination of policy options with Coastal Policy Team.
- Task 4:** Analysis of the values of created dunes/dune fields as a component of shoreline management.
- Task 5:** Completion of development and distribution of locality-specific dune resource inventories.
- Task 6:** Development of a web-based dune resource information and outreach educational material.
- Task 7:** Production of a Final Bay-wide monitoring program report.
- Task 8:** Preparation for action on program changes by agencies and General Assembly.

FY 2003: October 1, 2003 - September 30, 2004 (Marine Resources Commission)

- Task 1:** Development of legislative package for General Assembly action.
- Task 2:** Assistance to all Tidewater local governments with adoption of the revised management structure and legislative changes.
- Task 3:** Coordination and oversight of increased permit activity.

F. Summary of Program Costs

	FY01	FY02	FY03
Personnel	48,703	48,736	48,500
Fringe benefits	13,150	13,159	14,550
Equipment	0	0	0
Travel	8,000	8,000	1,500
Supplies	2,000	2,000	450
Contractual	6,500	6,500	0
Other	2,059	2,007	0
Total Direct	80,412	80,402	65,000
Indirect	19,588	19,599	0
Total	100,000	100,000	65,000

F. Likelihood of Attaining the Proposed Program Changes

Attainability of any regulatory changes is dependent upon the specific results of the on-going and proposed research, the subsequent suite of recommendations developed, and the management approach ultimately decided upon by the Commonwealth. However, the perceived regulatory modifications are consistent with the intent of the Dunes Act and, with the additional support of the research, appear attainable. Principal decision-makers have been included in the process to date and will also be included throughout the life of the project.

G. Fiscal and Technical Needs

Funding and staffing levels of natural resource agencies in Virginia are currently fixed, with no new funding likely. Projected surpluses in the Virginia economy have not been realized. Various tax reduction programs compound the likelihood of reductions to agency budgets. This limits the agencies abilities to undertake new or expanded program activities without outside funding.